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RECORD OF ORAL HEARING
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILFRIED HEIDE, STEFAN WICKEL,
THOMAS DANIEL,
JOACHIM NILGES,
and JURGEN HOFMANN

Appeal 2008-1435
Application 10/765,152
Technology Center 1700

Oral Hearing Held: April 17, 2008

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
KAREN M. HASTINGS, Administrative Patent Judges

ON BEHALF OF THE APPELLANTS:

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1 The above-entitled matter came on for hearing on Thursday,
2 April 17, 2008, commencing at 10:08 a.m., at the U.S. Patent and Trademark
3 Office, 600 Dulany Street, Alexandria, Virginia, before Dawn A. Brown,
4 Notary Registration No. 7066896, Notary Public.

5 THE CLERK: Calendar Number 46, Mr. Koschmieder.

6 JUDGE KIMLIN: Good morning.

7 DR. KOSCHMIEDER: Good morning. Should I spell my
8 name for the record?

9 JUDGE KIMLIN: Sure. Go right ahead.

10 DR. KOSCHMIEDER: Koschmieder, K-O-S-C-H-M-I-E-D-E-
11 R.

12 JUDGE KIMLIN: That is what we have.

13 DR. KOSCHMIEDER: Great.

14 JUDGE KIMLIN: Now we know how to pronounce it. Where
15 are you from? Across the street.

16 DR. KOSCHMIEDER: Across the street.

17 JUDGE KIMLIN: Welcome. Hope you had a safe trip.

18 DR. KOSCHMIEDER: It was uneventful.

19 Shall I begin?

20 JUDGE KIMLIN: Sure.

21 DR. KOSCHMIEDER: A few things I'd like to point out
22 between the claimed invention and the method that is disclosed in the
23 Tsubakimoto prior art, and that is U.S. Patent 4625001. And for the record,
24 Tsubakimoto is spelled T-S-U-B-A-K-I-M-O-T-O.

1 In Tsubakimoto, they're describing a number of machines that
2 can be used to carry out polymerizations and then isolate a finely ground
3 material obtained from the polymerizations.

4 And you can see that in the figures essentially what
5 Tsubakimoto was disclosing is a reaction vessel that has a stirring
6 mechanism and then some what I'll call downstream mechanism for further
7 isolating material.

8 The point I'm going to get to is in Tsubakimoto the
9 polymerization of the monomer materials can be loaded in the reaction
10 vessel, stirred for a period of time to obtain polymerization, and
11 subsequently, the polymerized material is withdrawn or removed from that
12 reaction vessel.

13 In the presently claimed invention, we have a continuous
14 method in which there is a continuous addition of the monomer mixture into
15 this mixing meter which has these combination of stirring elements and
16 transporting elements. So you can imagine the difference there.

17 In the claimed invention, we have continuous input, continuous
18 output of material happening very quickly where there is not any necessary
19 preliminary polymerization vessel. So Tsubakimoto is different in that in
20 principal there is a pre-polymerization step taking place in that vessel and
21 subsequently the material is isolated.

22 That is how I would initially on a broad scale distinguish the
23 claimed invention from what is disclosed in the Tsubakimoto.

24 JUDGE HASTINGS: Isn't it true once the reaction gets
25 underway that the solution is fed continuously to the kneader and it is

1 continuously fed into and continuously let out of the apparatus of the
2 reference?

3 DR. KOSCHMIEDER: I don't believe so, no. They use the
4 word "continuous." It is defined as including the -- well, actually, it is
5 defined as keeping a constant level in that -- in the apparatus -- the prior art
6 apparatus.

7 So keeping a constant level doesn't mean you're continuously
8 feeding materials in. You could feed in a batch, so to speak, allow it to stir
9 and then replenish it. I wouldn't characterize that as a continuous feeding of
10 materials in the prior art apparatus.

11 JUDGE HASTINGS: Well, column 13 of the reference does
12 characterize it as the solution is fed continuously to the kneader and
13 continuously in that form discharged at column 13, lines 26 through 31.

14 DR. KOSCHMIEDER: Let me find the definition of -- so I'm
15 looking at column 6, beginning at line 25. The word "continuous" is
16 defined. The term "continuous" as used herein is not required to be
17 interpreted as constant, the exact sense of the word that may be interpreted
18 as portraying, the discharge of the produced polymer in a pulsating manner
19 or in an intermittent manner.

20 So while they may use that word "continuous" in column 13, it
21 is not necessarily indicative of continuous feeding of the product.

22 And I think especially with respect --

23 JUDGE GARRIS: What is your point here? I'm not sure I'm
24 following. You say that this reference doesn't necessarily require
25 "continuous" to mean the same thing as you. It could mean other things. Is
26 that your point?

1 DR. KOSCHMIEDER: Well, my point is that in Tsubakimoto,
2 they're describing an apparatus wherein constant addition of monomer
3 material is not a requirement. In fact, in Tsubakimoto --

4 JUDGE GARRIS: The issue is not if it is required; the issue is
5 if it is disclosed.

6 DR. KOSCHMIEDER: Perhaps it is suggested in
7 Tsubakimoto, but is there a continuous monomer mixture disclosed such as
8 required in the invention of the present claim. I say no, it is not.

9 And that is particularly relevant to distinguish the distinction
10 that I'm making between Tsubakimoto and the claimed invention is
11 especially relevant with respect to claims 30 to 32, the dependent claims that
12 are pending.

13 In our dependent claims, 30 through 32, we are limiting the
14 amount -- the residence time of the monomer mixture and the kneading
15 device. As I mentioned before, in the claimed invention where we have a
16 continuous kneading of the monomer mixture into the mixing meter and then
17 subsequently conveying downstream, that is a very short residence time.

18 In Tsubakimoto, with this what I'll call pre-polymerization step,
19 you're not going to have that short residence time. I think my comments in
20 that regard are especially relevant to the dependent claims.

21 JUDGE GARRIS: I think you just conceded this reference at
22 least would have suggested the continuous feeding as you interpret in your
23 claim.

24 And if you're performing that kind of continuous operation in
25 the reference, you're using the same materials that the reference uses, then

1 why would the residence time not have been the consequence -- the obvious
2 consequence of using those same materials in a continuous fashion?

3 DR. KOSCHMIEDER: The apparatus of Tsubakimoto is one
4 in which the first -- let me use the word stage -- that is not a word that is in
5 Tsubakimoto. I'm going to call it the first stage.

6 You have a mixing stage, wherein first in Tsubakimoto the
7 monomer mixture is added to a vessel which has stirring elements. So first
8 in Tsubakimoto you have the monomer mixture to the vessel in which the
9 monomer mixture is stirred by these elements.

10 In contrast, the claimed invention you continuously add to a
11 mixing kneader that has elements having transporting and kneading
12 elements.

13 JUDGE GARRIS: The examiner disagrees with your
14 construction of the reference disclosure, does he not? He is applying this
15 reference as a 102.

16 DR. KOSCHMIEDER: I believe that is incorrect. I think it is
17 incorrect for a number of reasons if we look at our independent claim.

18 JUDGE GARRIS: Before we go there, if, in fact, the examiner
19 were to be considered correct that kneading and transporting elements are
20 indeed present in the reference as required by your claim, then I want to get
21 back to the original question I raised with respect to these dependent claims.

22 The residence time, then, had been the obvious consequence of
23 using the same apparatus with the same protocol, the same procedures, that
24 led to the same residence time.

25 DR. KOSCHMIEDER: I would say no because the apparatus --
26 even as you look at the apparatus in the figures of Tsubakimoto, you see

1 there is a first large -- I use the word "stage" again -- it is a vessel in which
2 the polymerization was initiated and that is also reflected in the examples of
3 Tsubakimoto.

4 So even if the examiner is correct, with respect to dependent
5 claims 30 through 32, it is not necessarily a consequence or obvious that you
6 can obtain short residence time using the apparatus of Tsubakimoto.

7 JUDGE GARRIS: One of the figures of Tsubakimoto we
8 should be looking at here -- didn't the examiner refer us to figures 4 and 5?

9 DR. KOSCHMIEDER: That is correct.

10 JUDGE HASTINGS: And isn't that a single mixer kneader
11 with a discharge screw? I don't see any -- I don't know what you're referring
12 to.

13 DR. KOSCHMIEDER: Well, if you'll see the dots there. Let's
14 look at figure number 5 and figure number 5 has -- let's call it a level -- and
15 that level is identified by reference number 33 and those dots.

16 That dot is what I guess you could refer to it as a ballast of the
17 polymerization or the monomer mixture. That is what I mean by the vessel,
18 and that is the large volume there identified by reference number 33.

19 So necessarily, as you add material there, there is going to be a
20 ballast or a delay which would be lengthened as that material is mixed with
21 the mixing elements identified as reference 26 in figure 5.

22 JUDGE HASTINGS: As the reference teaches, as you
23 continuously add, you also continuously extract through the screws 29 and
24 30 at the bottom.

25 DR. KOSCHMIEDER: Perhaps you continuously add and
26 continuously extract, but not instantaneously.

1 JUDGE HASTINGS: Okay.

2 DR. KOSCHMIEDER: And if you look at the examples of
3 Tsubakimoto, they do have some times provided. For example, I'm looking
4 in -- at column 9, line 16. Polymerization began to proceed 15 minutes after
5 the addition of the polymerization initiated. So there you have 15 minutes
6 before the product is even formed much less removed from the prior art
7 apparatus.

8 Did that answer your question?

9 JUDGE GARRIS: Did you want to, maybe, have us focus --
10 why don't you point out to the aspects of your independent claim to
11 distinguish further the reference the examiner has applied?

12 DR. KOSCHMIEDER: We can begin with the -- this is going
13 to be line -- six from the bottom of independent claim 10 where it recites a
14 mixing kneader having two axially parallel rotating shafts having a plurality
15 of kneading and transporting elements conveying the monomer mixture from
16 upstream to downstream.

17 If we look at Tsubakimoto, first, as I mentioned already, he is
18 describing reference number 26 as mixing elements and not as transporting
19 elements.

20 I believe the examiner's position is that it would naturally -- you
21 would naturally have conveyance of material when you mixed it. Perhaps
22 you will have mixing, but that is not necessarily conveyance of material.
23 Nothing has been conveyed when you mix something.

24 I think the examiner has taken the position that if you have a
25 closed vessel and you move some material from one end to the other end
26 you have conveyed it. And I would disagree with that. You haven't

1 conveyed anything; you just mixed it. I think that conveyance step
2 requirement of our claim is different.

3 Now, with respect to the requirement that we have two axially
4 parallel rotating screws, the examiner has pointed alternately to element 26
5 in figure 5 or reference numbers 29 and 30. 29 and 30 probably come
6 closest to what is claimed in the present application, but there is no
7 indication in Tsubakimoto that those screws are, in fact, parallel.

8 JUDGE HASTINGS: How can you say that - just looking at
9 figure 5 - 29 and 30 are not parallel?

10 DR. KOSCHMIEDER: Well, if that is a side-on view,
11 reference number 30 could well be canted at an angle. It could even be -- 90
12 degrees would be an exaggeration, but that does not necessarily tell me that
13 is a parallel orientation.

14 JUDGE HASTINGS: Well, I guess I would look at figure 4
15 which shows 29 in a parallel orientation with 26 and figure 5, both 29 and
16 30, are disclosed in the same manner.

17 I don't know how you view 30 as being anything but parallel to
18 29 or 26.

19 DR. KOSCHMIEDER: Because if 30 is being used to convey
20 material, I don't see why there would be any requirement that it would
21 necessarily be transported in a parallel fashion linearly in the same axis as
22 29. There is no description.

23 I think you're making that observation based solely upon figure
24 5 and maybe that is one conclusion you can come to. Tsubakimoto does not
25 give us guidance with respect to whether or not those are parallel.

1 Regardless of that fact, I think there is another important issue,
2 and that is the kneading and transporting elements. If we look at reference
3 number 26, Tsubakimoto describes those only as mixing elements and not
4 transporting elements.

5 So to make a long story short, I think it is those features of our
6 claim 10 that distinguish from the apparatus of Tsubakimoto in that
7 Tsubakimoto does not necessarily require that reference number 29 and 30
8 are actually parallel and further doesn't require that the reference number 26
9 must have mixing and kneading elements -- pardon me -- transporting
10 elements.

11 JUDGE HASTINGS: Two questions. The curve on the
12 elements on shaft 26 shown in figure 5 and figure 4, how could that not
13 cause some transportation? The examiner's position is there is at least some
14 transporting and conveying going on by these mixer elements.

15 DR. KOSCHMIEDER: Simply because of its function, and
16 you can imagine a large mixing bowl having anything in it. When you mix
17 the materials in that mixing bowl, are they being transported or conveyed?
18 No. I think they're staying in the mixing bowl. And my point is reference
19 number 26 is not functioning in any manner to remove materials from that
20 vessel.

21 JUDGE HASTINGS: In a mixing bowl, you have no outlet if
22 you just have a big mixing bowl. Here, you have an outlet and you have a
23 disclosure of continuous in feeding and out feeding.

24 But to move on, claim 26 which depends from claim 10, what is
25 the difference between your claim 10, the shaft having a plurality of

1 kneading and transporting elements, and claim 26 which says the shaft
2 having a combination of kneading and transporting elements.

3 The examiner's position is that shaft 29, as you've admitted
4 here, can function to do the transporting and have the transporting elements
5 on it and the shaft 26 has the kneading elements on it, so that combination
6 does satisfy at least two shafts having a plurality of kneading and
7 transporting elements.

8 And likewise, potentially with claim 26. But what is the
9 difference between "a plurality" and "a combination".

10 DR. KOSCHMIEDER: In claim 26, as I read claim 26, each
11 parallel rotating shaft has to have both kneading and transporting elements,
12 whereas in claim 10, you could interpret that in a broader fashion.

13 JUDGE HASTINGS: So only one shaft could have kneading
14 elements and the other shaft could have transporting elements?

15 DR. KOSCHMIEDER: Correct.

16 JUDGE GARRIS: Why doesn't that construction of claim 10
17 actually read on figure 5 of our reference in which you've characterized shaft
18 26 as having kneading or mixing elements and shaft 29 as having
19 transporting elements?

20 DR. KOSCHMIEDER: Did I characterize 26 as having
21 kneading elements or did I characterize 26 as having mixing elements? I
22 would characterize reference number 26 in figure 5 as having mixing
23 elements. If I earlier said kneading elements, that is not correct.

24 JUDGE GARRIS: What is the difference?

1 DR. KOSCHMIEDER: A kneader -- well, you can imagine
2 kneading is like kneading dough. And a mixer could, for example, carry out
3 mixing without the kneading.

4 JUDGE GARRIS: Let's not get too cute here. You're claiming
5 here a mixing kneader and it has these two shafts and has a plurality of
6 kneading and transporting elements.

7 I'm not seeing the difference between a mixing kneader that has
8 kneading elements and a mixing kneader that has mixing elements. It seems
9 to me kneading is a form of mixing and mixing preforms a kneading
10 function. I'm just not seeing whatever distinction you're trying to draw here.

11 DR. KOSCHMIEDER: The distinction I'm trying to draw I
12 think may be more applicable to dependent claims 30 through 32 where
13 there is a requirement for residence time.

14 I think -- if you think of -- if you look at claims 30 through 32
15 where there is a residence time requirement and if you consider
16 Tsubakimoto with respect to the -- as I mentioned before, the stage or the
17 ballast nature of the reaction vessel that has to occur, I think that is where
18 the distinction comes forward in its clearest manner, at least with respect to
19 claims 30 through 32.

20 One can argue whether or not kneading is mixing and
21 transporting is conveying, etc., but like I just said, I think the distinction
22 really comes forward in claims 30 through 32.

23 JUDGE HASTINGS: Let's move to, then, column 9 of the
24 reference and the argument that you made in your brief that at a minimum,
25 the time disclosed here was 50 minutes you said.

1 And in the brief on column 9 you said that first it discloses that
2 polymerization begins to proceed 15 minutes after the addition of the
3 polymerization initiator, and then you added that 15 minutes to a statement
4 just a couple of lines later on that says the inner temperature of the reaction
5 system reached 80 degrees within 35 minutes of that same addition, as I read
6 the reference, of the polymerization initiator.

7 Wouldn't it be more accurate to say that at worst this is saying
8 35 minutes? It is not saying 50 minutes, because both of these conditions
9 that they're talking about in column 9, both occur after the addition of the
10 polymerization initiator. They don't occur subsequent to each other, that is,
11 they do not occur sequentially.

12 DR. KOSCHMIEDER: Pardon me one second. Let me just
13 read through the disclosure.

14 JUDGE HASTINGS: Then we're potentially looking at 35
15 minutes versus claim 30 is 30 minutes.

16 DR. KOSCHMIEDER: You have a point as a matter of fact,
17 and I'm sorry it is just not fresh enough in my mind to give you a clear
18 answer. I see the point you're making.

19 When I wrote the brief, my interpretation was different and I
20 added the 15 to 35, and I'm just not -- there was a reason for that, which
21 doesn't come to mind now.

22 But just as I was flipping through this at the very last sentence,
23 that is line 34 and 35 of column 9, it says the resultant homogeneous mixture
24 was fed into the kneader over a period of 24 hours. Even that is indicating to
25 me that somehow this was polymerized for 24 hours.

1 JUDGE HASTINGS: No. I don't know how we would do the
2 calculations here, but as you said, there is a tank of solution, which is
3 continuously fed into this kneader and continuously discharged.

4 And I guess it would depend on how large that initial charge
5 was -- how long it would be in the kneader over that period of 24 hours.
6 Neither the examiner or you have made an analysis on that basis.

7 DR. KOSCHMIEDER: Now, with respect to some of our other
8 dependent claims, we have some dependent claims where we cite specific
9 types of elements on our screws. For example, our dependent claims 27
10 through 29, each recite particular types of elements on the parallel rotating
11 shafts. Those particular elements are not disclosed in Tsubakimoto.

12 So for example, if we look at claim 29, the axially parallel
13 rotating shafts are equipped with L-shaped or U-shaped attachments. And
14 although Tsubakimoto in figure 2 and 3 has some elements depicted
15 diagrammatically, there is no indication those are L-shaped or U-shaped.

16 JUDGE HASTINGS: How about -- the examiner also referred
17 to figure 6A through D, which are alternative embodiments of possible
18 stirring blades for the mixer. Wouldn't one looking at 6A, conclude that
19 seems to be generally L-shaped just by looking at it?

20 DR. KOSCHMIEDER: I would say no. And the reason I say
21 no is from my past experience working with extruders and with equipment
22 for extruding plastics. An L-shaped material or the U-shaped would refer to
23 a -- in the case of an L-shaped device, the axis of the shaft passes through
24 the long portion of the L.

1 And here the axis in figure 6A -- now, remember, this is not
2 something that is disclosed either in our specification or in Tsubakimoto.
3 This is from my own experience.

4 In figure 6A, the axis of the shaft is not coincident with the
5 backbone of the L. And for a U-shaped material, it would be -- the axis
6 would pass through the U's, the vertical portion of the U's.

7 JUDGE HASTINGS: Going back to the language of claim 29,
8 it merely says there is at least one of an L-shaped or U-shaped attachment on
9 the shaft. As I'm sure you recognize, the claim doesn't specify that the shaft
10 formed the backbone of the L.

11 DR. KOSCHMIEDER: There was one additional dependent
12 claim that I wanted to discuss, and that is a dependent claim which required
13 that no heat is removed from the -- that is dependent claim 24. No heat is
14 removed by a cooling of the reactor walls.

15 The examiner has taken the position that because Tsubakimoto
16 discloses an embodiment wherein the heat is at least partially removed from
17 using a water jacket that Tsubakimoto discloses or suggests subject matter
18 from claim 24, and I would disagree with that. I think that partial removal of
19 heat in no way suggests or discloses no removal of heat from the reactor
20 wall.

21 JUDGE HASTINGS: Well, it says no heat is removed via
22 cooling of the reactor walls. What the examiner is pointing to is that the
23 cooling jacket 27 is optional. It is disclosed in the reference as being an
24 optional cooling jacket.

25 So therefore, the reference also discloses -- you don't need a
26 cooling jacket since it is optional. And if you don't have a cooling jacket,

1 the examiner's position is that you would then satisfy claim 24 because no
2 heat would be removed via cooling of the reactor walls because there would
3 no longer be the optional jacket 27 there.

4 DR. KOSCHMIEDER: I'm reading at column 4 beginning at
5 line 38, for the purpose of keeping the aqueous monomer solution or
6 partially removing the heat of polymerization reaction during
7 polymerization, it is desirable to provide the polymerization vessel with a
8 jacket.

9 So I'm not sure -- I don't understand why --

10 JUDGE HASTINGS: Column 5, line 36 on, says optionally,
11 the vessel was provided near the bottom portion thereof with a jacket filled
12 with a heat transfer medium. So he was relying on that line and saying since
13 it is optional to provide it with a jacket, it is optional not to have a jacket.

14 DR. KOSCHMIEDER: And my point would be that there are
15 ways to remove heat from the reaction wall other than having a cooling
16 jacket on there. A fan could be present, for example, and naturally heat
17 would be radiated through the wall.

18 So I'm not sure how the examiner from those two disclosure
19 comes to the conclusion that there is an embodiment disclosed in
20 Tsubakimoto where no heat is removed by a cooling of the reactor walls.

21 JUDGE KIMLIN: I guess, possibly, in the same way that yours
22 doesn't have a cooling jacket, it would still be some transmission of heat
23 through the wall.

24 DR. KOSCHMIEDER: Or alternatively, in an earlier part of
25 the -- in the polymerization, any exothermic -- the exothermic nature of the
26 polymerization could result in evaporation of water and thereby you could

1 have cooling. You wouldn't actually need radiative cooling through the
2 reactor wall, but instead by evaporation of water or a side product formed
3 during the polymerization.

4 JUDGE KIMLIN: Any further questions? I think we're beyond
5 our time limit.

6 DR. KOSCHMIEDER: Thank you very much.

7 Whereupon, the proceedings at 10:40 a.m. were concluded.